

Notice of Allowability

Application No.

10/623,357

Examiner

Tuan T. Nguyen

Applicant(s)

SMITH, KENNETH

Art Unit

2824

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to ____.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☐ The drawings filed on ____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
 - (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date ____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☒ Other Attachment A: Search History
and proposed drawing correction



RICHARD ELMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

DETAILED ACTION

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

EXAMINER'S AMENDMENT

2. The application has been amended as follows:

In the Abstract, line 1, delete "are disclosed"

Page 6, line 23, change "FIG. 7" to – FIGS. 7a and 7b –

Page 17, line 11, change "FIG. 7" to – FIGS. 7a and 7b –

Page 19, line 1, change "FIGS. 7 and 8" to – FIGS. 7a, 7b and 8 –

Page 19, line 12, change "FIG. 7" to – FIGS. 7a and 7b –

In the drawings, page 4, change "FIG. 7" to -- "FIG. 7a – (see attached drawing with red ink marked up))

In the drawings page 5, change "FIG. 7. (CONT.)" to – FIG. 7b – (see attached drawing with red ink marked up)

3. Claims 1-20 are allowed.

4. The following is an examiner's statement of reasons for allowance:

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The prior art of record fail to disclose a method for recalibrating a sense amplifier during a sense of a selected memory cell, in combination with other cited limitation, comprising measuring a physical property of the selected memory cell to produce a first measurement; comparing the first measurement to a first range, wherein the first range is indicative of a short circuit or an open in the selected memory cell; halting the sense of the selected memory cell if the first measurement exceeds the first range; comparing the first measurement to a second range, wherein the second range is a predetermined range signifying a recalibration of the sense amplifier may be necessary; proceeding with the sense if the first measurement is within the first range and the second range; repeating the steps of measuring and comparing for a predetermined number of iterations, if after each iteration, the measurement exceeds the second range but is within the first range; and recalibrating the sense amplifier, if after the predetermined number of iterations, the measurement still exceeds the second range but is within the first range as recited in claims 1-5.

The prior art of record also fail to disclose a method for testing for needed recalibration of a sense amplifier during a sense of a resistance value of a selected memory cell, the method comprising defining an average time value indicative of averaged time values for each of a selected set of memory cells, wherein the resistance of each cell of the selected set of cells is connected in series with a selected pre-charged capacitance, and with present operating parameters of the memory cell array applying; determining a time value indicative of the discharge time of the selected capacitance upon connection to the resistance of the selected memory cell; calculating a difference value by comparing the time value to the average time value; halting the sense of the selected memory cell if the difference value exceeds a first

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range; redetermining the time value and recalculating the difference value if the difference value is within the first range but exceeds a second range; recalibrating the sense amplifier if the recalculated difference value still exceeds the second range; and proceeding with the sense operation if the difference value or the recalculated difference value is within the second range as recited in claims 6-8.

The prior art of record also fail to disclose a method for increasing the quality of sensing during a read on a memory cell, the method comprising sensing a parameter of the memory cell; comparing the parameter to a threshold to determine whether the parameter is valid; enabling a sensing procedure upon determining the parameter is valid; and enabling a response procedure upon determining the parameter is not valid as recited in claims 9-16.

The prior art of record further fail to disclose a sensing system for sensing a state of a memory cell, the system comprising means for sensing a parameter of the memory element; means for comparing the parameter to a first range to determine whether the parameter is valid; means for performing a sensing procedure upon determining the parameter is valid; and means for performing a response procedure upon determining the parameter is not valid as recited in claims 17-19.

The prior art of record also fail to disclose a program for sensing a state of a memory element, the program being stored on a computer-readable medium, the program comprising logic configured to enable sensing of a parameter of the memory element; logic configured to compare the parameter to a first range and second range to determine whether the parameter is valid; logic configured to enable a sensing procedure upon determining the parameter is valid;

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logic configured to re-enable sensing of the parameter of the memory element upon determining the parameter is invalid; and logic configured to facilitate recalibration of sensing equipment configured to perform the sensing, upon re-sensing the parameter for a predetermined number of iterations as recited in claim 20.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T. Nguyen whose telephone number is (571) 272-1880.

The examiner can normally be reached on Mon-Thu-Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (571) 272-1869. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



October 1, 2004

Tuan T. Nguyen
Patent Examiner
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